

To: Deanna Mitchell[deanna_mitchell@nps.gov]
From: Boone, Whitney
Sent: 2017-06-08T10:00:47-04:00
Importance: Normal
Subject: Fwd: 2 Monument review documents for review, deadline 2 pm Thursday June 8
Received: 2017-06-08T10:01:41-04:00
[Draft Interim report on Monument Review Process.docx](#)
[Bears Ears Review draft 06_07_17_2.docx](#)

Hi Deanna,

I realized you weren't on this initial email. I'm not sure if the attachments were included in the email I just sent, so I'm forwarding you Randy's initial email and attachments.

(b) (6) [REDACTED]

----- Forwarded message -----

From: **Bowman, Randal** <randal_bowman@ios.doi.gov>
Date: Wed, Jun 7, 2017 at 5:49 PM
Subject: 2 Monument review documents for review, deadline 2 pm Thursday June 8
To: "Boone, Whitney" <whitney_boone@nps.gov>, Aaron Moody <aaron.moody@sol.doi.gov>, Ann Navaro <ann.navaro@sol.doi.gov>, Herbert Frost <bert_frost@nps.gov>, Benjamin Simon <benjamin_simon@ios.doi.gov>, Betsy Hildebrandt <betsy_hildebrandt@fws.gov>, "Maucieri, Mathew" <mmaucieri@usbr.gov>, Tanya Joshua <tanya_joshua@ios.doi.gov>, "Appel, Elizabeth" <elizabeth.appel@bia.gov>, "McAlear, Christopher" <cmcalear@blm.gov>, Jeff Rupert <Jeff_Rupert@fws.gov>, Randal Bowman <randal_bowman@ios.doi.gov>, Nikki Moore <nmoore@blm.gov>, Sally Butts <sbutts@blm.gov>, Anthony Rodman <anthony.rodman@bia.gov>, "Schmidt, Jaime T -FS" <itschmidt@fs.fed.us>, Laura Brown <laura.brown@sol.doi.gov>, Timothy <tjfisher@blm.gov>, "Powell, Christine" <chris_powell@nps.gov>, Kaiini Kaloi <kaiini_kaloi@ios.doi.gov>, "Van Houten, William" <william_vanhouten@ios.doi.gov>

Attached are drafts of the interim report on the monument review process and the economic report on the Bears Ears monument. Please review and have any comments back to me by 3 pm tomorrow, June 8.

Due to late edits to the draft economic report there are some formatting issues there that will be corrected; no need to comment on those.

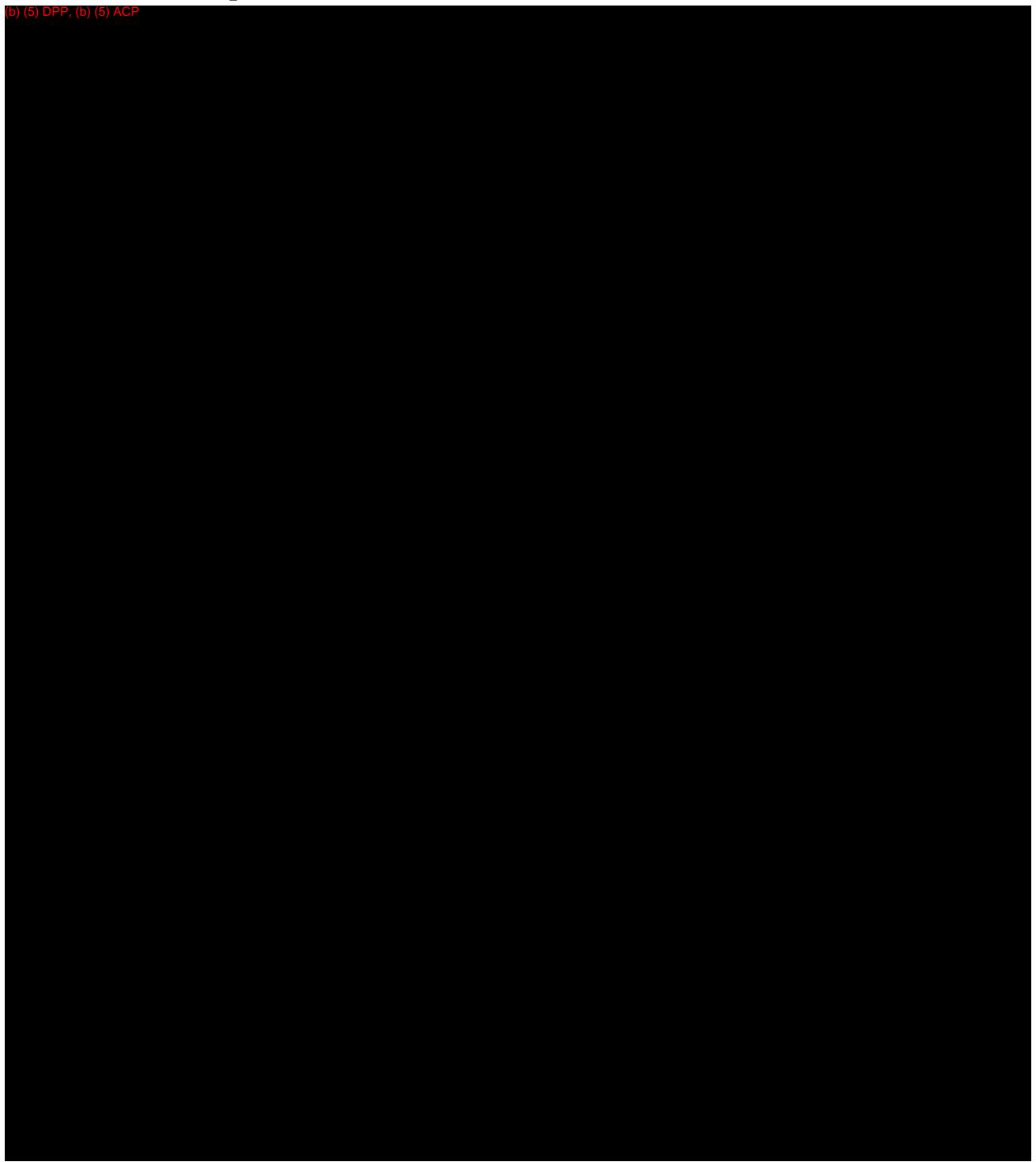
I regret the short turn-around, but that is likely to be the norm for this process.

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Whitney Boone
Park Planning and Special Studies
National Park Service

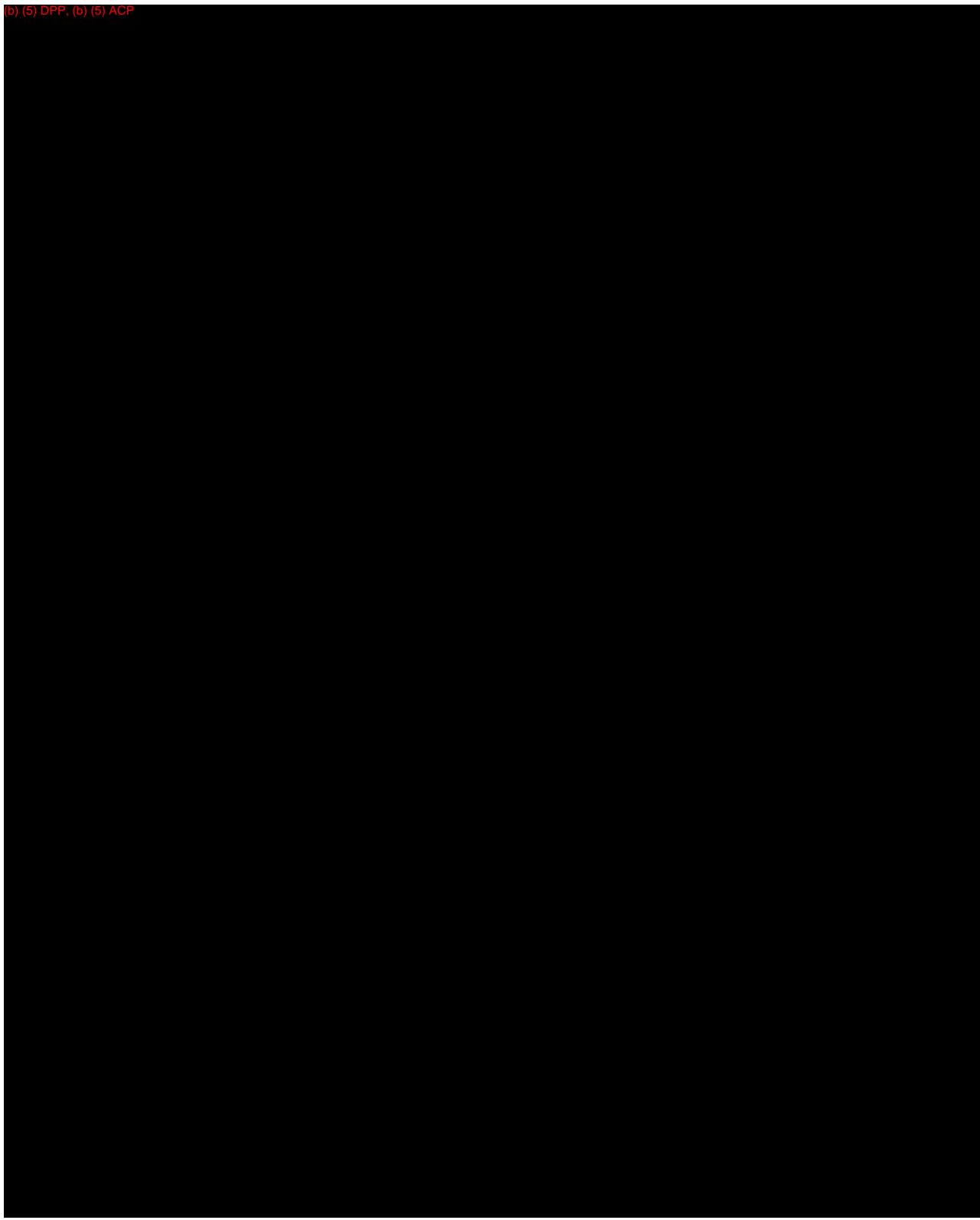
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Draft Interim report on Monument Review Process

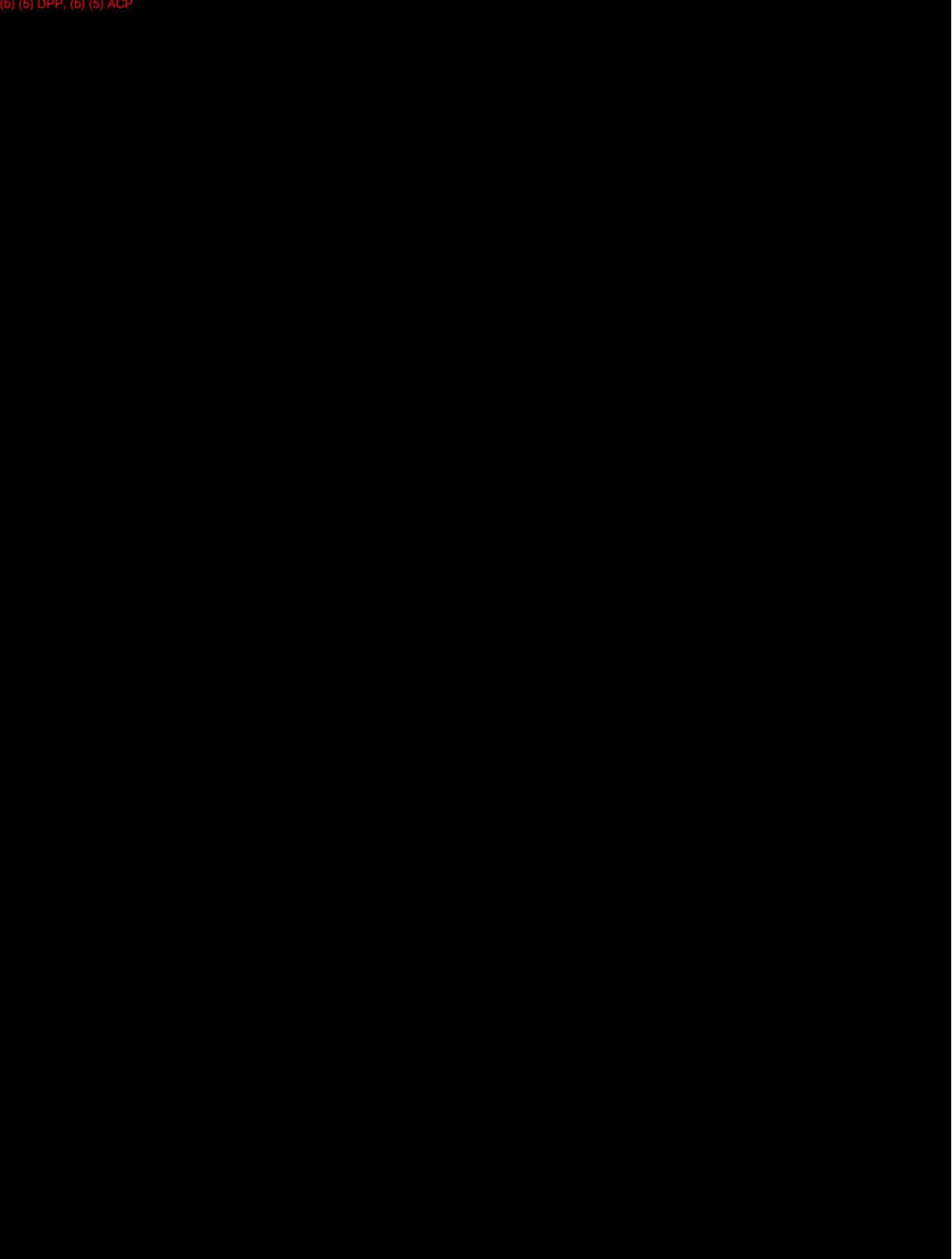
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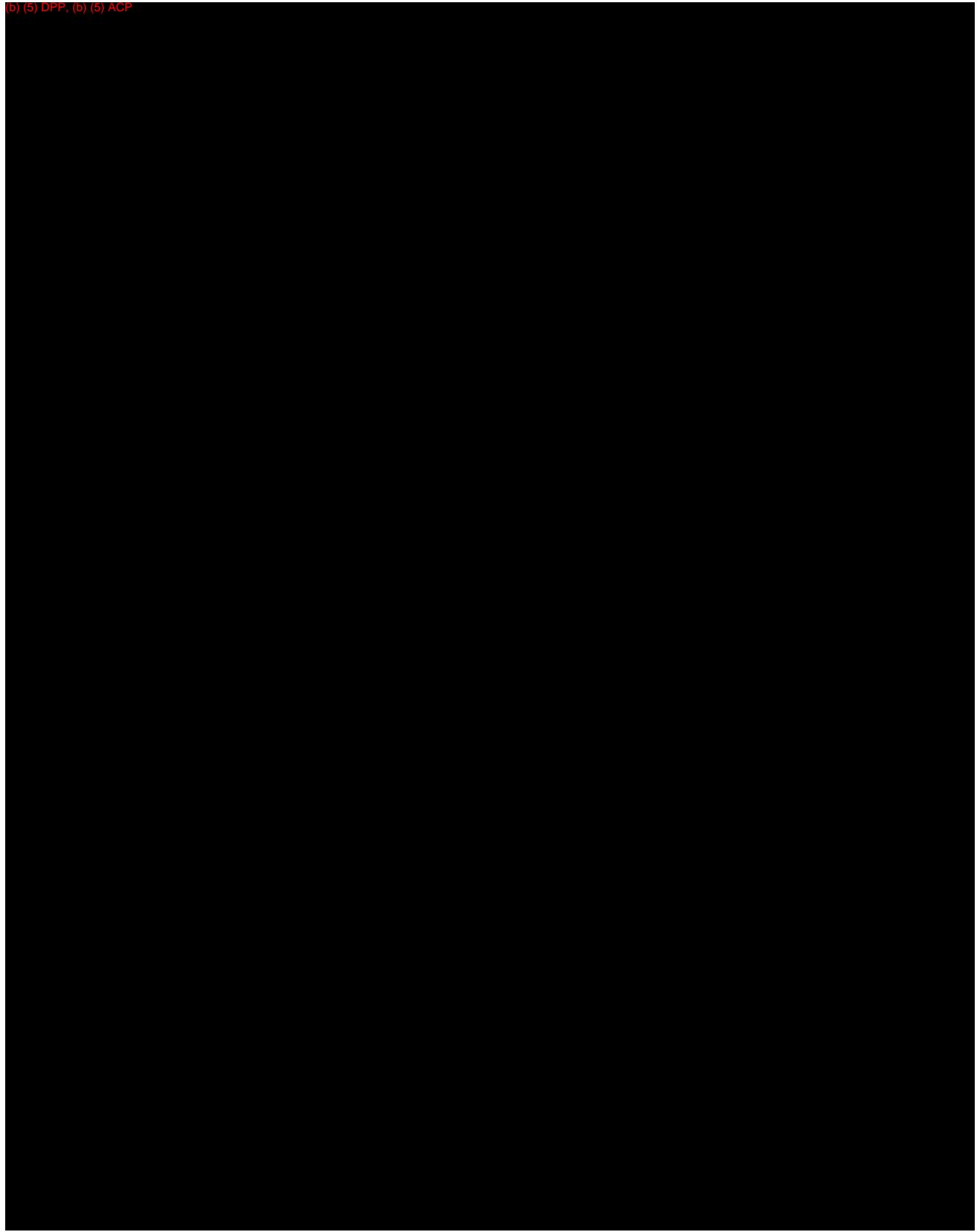
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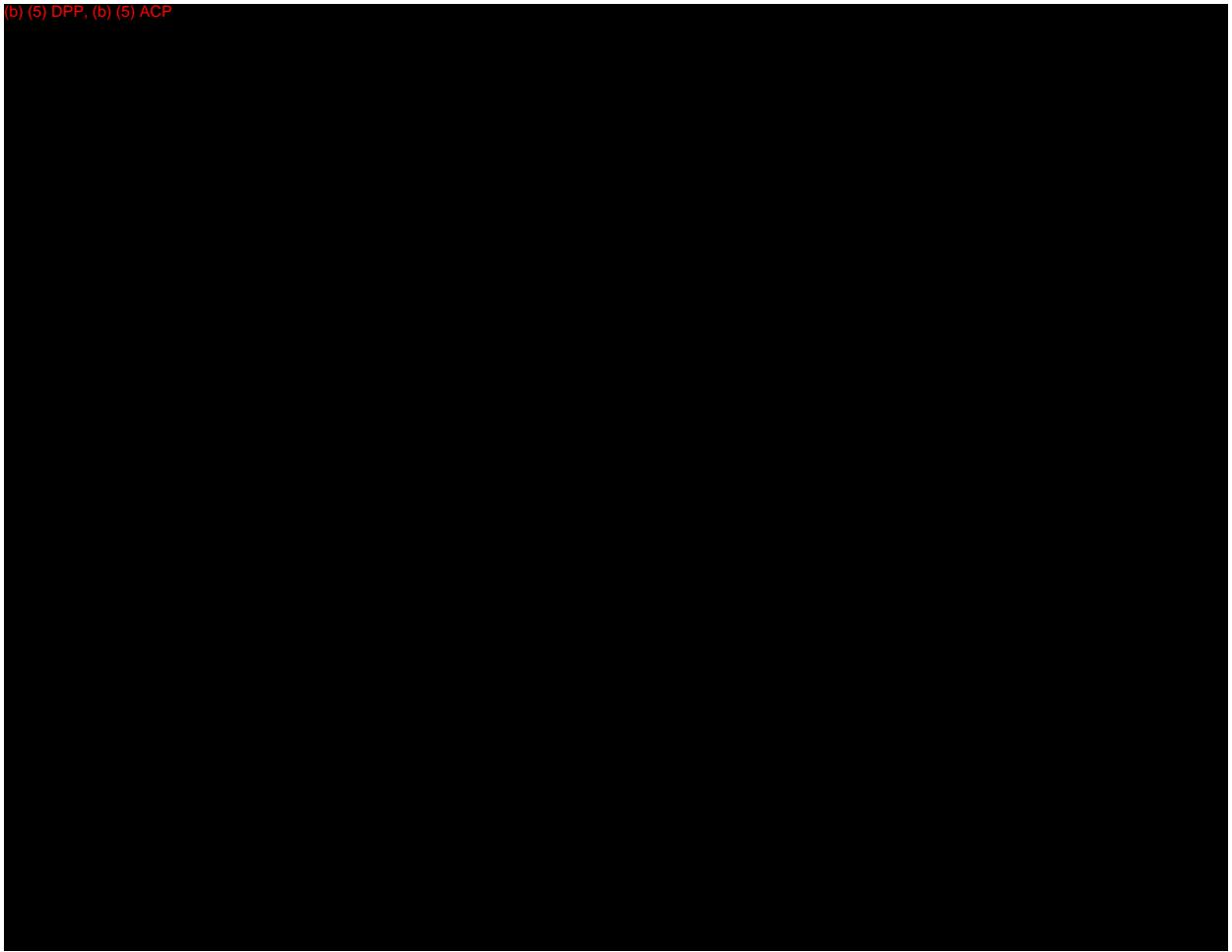
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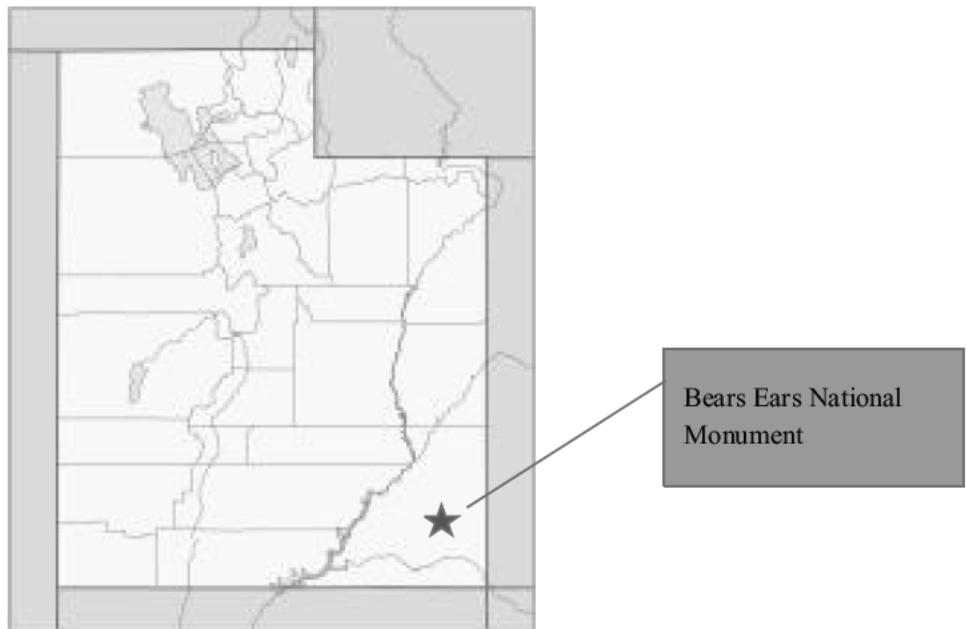
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Bears Ears National Monument

DRAFT



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Introduction

The purpose of this paper is to provide information on the economic values and economic contributions of the activities and resources associated with Bears Ears National Monument (BENM) as well as to provide a brief economic profile of San Juan County.

Background

The Bears Ears National Monument encompasses 1.4 million acres in San Juan County, UT and was established in 2016 for the purposes of protecting lands that contained cultural, prehistoric, historic, and scientific resources, including objects of archaeological significance, as well as providing access to outdoor recreation activities that serve a growing travel and tourism industry in the area. Prior to establishment of the monument, all lands within the monument boundaries were Federal lands managed by BLM (Monticello Field Office) and the USFS (Manti-La Sal National Forest), with the exception of over 100,000 acres of land owned by the State of Utah and managed by the Utah School and Institutional Trust Lands Administration (SITLA).¹ Economic activities occurring on SITLA land in the area are similar to those on adjacent Federal land, including visitation to prominent cultural resource sites and grazing.² Of the federal acreage, 57% was protected under other BLM land use designations (i.e. Wilderness Study Area, Natural Area, Area of Critical Environmental Concern, Special Recreation Management Area).

Proposals to protect land in the Bears Ears area date back over 80 years. More recently, in 2015, the “Inter-Tribal Coalition for Bears Ears” proposed establishing a 1.9 million acre national monument.³ Utah Congressmen Rob Bishop and Jason Chaffetz proposed establishing two National Conservation Areas (NCAs) -- Bears Ears and Indian Creek -- totaling 1.3 million acres as part of their Public Lands Initiative (PLI).⁴

Bears Ears National Monument

Location: San Juan County, UT

Managing agencies: BLM, USFS

Adjacent cities/counties/reservations:

- Counties: San Juan County, UT
- Reservations: Navajo Nation
- Cities: Bluff, UT; Blanding, UT; Monticello, UT; Navajo Nation Reservation

¹ SITLA serves as fiduciary of Utah’s 3.4 million acres of trust lands, parcels of land held in trust to support 12 state institutions, primarily the K-12 public education system. SITLA is constitutionally mandated to generate revenue from trust lands to build and grow permanent endowments for these institutions, which were designated by Congress in 1894. Utah’s public school system is the largest beneficiary, holding 96% of all Utah trust lands.

² Different rules apply to grazing on SITLA land versus Federal land, such as allowing SITLA to post expiring permits on the agency’s website, establish 15 years as the maximum length for grazing permits, and set a fee of \$10/AUM when permits are assigned. The Federal grazing fee in 2017 is \$2.11/AUM.

³ The Inter Tribal coalition consists of representatives from the Hopi Tribe, Navajo Nation, Uintah and Ouray Ute Tribe, Ute Mountain Ute Tribe, and Zuni Tribe.

⁴ National Conservation Areas are designated by Congress. In contrast to the Inter Tribal Coalition’s proposal, the PLI did not specify that all areas were to be withdrawn from future mineral development, places a restriction on decreasing grazing permits in one of the proposed NCAs, and places restrictions on Federal negotiations with the State of Utah for land exchanges for State owned land within the proposed boundaries. In addition, the PLI also included greater local government and community involvement in the development and administration of the management plan through a committee that included Federal, State, local government, tribal, and community interest representatives.

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A management plan for the Monument has not yet been drafted. Development of a management plan would typically require at least several years and involve extensive public involvement.⁵ The Presidential proclamation established the Bears Ears Commission, consisting of one elected official each from five different tribes (Hopi Tribe, Navajo Nation, Ute Mountain Ute Tribe, Ute Indian Tribe of the Uintah Ouray, and Zuni Tribe). The Commission is to work with the Federal government to provide guidance and recommendations on the development and implementation of management plans. In addition, DOI is seeking to enter into a MOU with the State of Utah to negotiate the exchange of state land within the monument boundaries for other BLM land outside the Monument.⁶

Public outreach prior to designation

A public meeting was held in Bluff, UT in July 2016. Over 1,500 individuals attended, including representatives from DOI, USDA, tribes, members of the Utah congressional delegation, and Utah state legislature. In addition, almost 600 written comments were submitted, the majority of which were in favor of the monument designation.⁷

Local Economy and Economic Impacts

San Juan County in southeastern Utah is home to roughly 5% of the State's population. In recent years, it has experienced higher levels of unemployment and lower levels of median household income in comparison to the State.

The population of the county has increased substantially over the past 20 years. Nearly half of the population of the county is Native American. The median household income of Native Americans in San Juan County is over 40% lower than that of the county (see Table 1).

The San Juan County economy is dependent upon recreation-based businesses and the accommodation and food services industry is the largest by employment in the county (see Figure 1). According to the USDA Economic Research Service's county-level typology codes, San Juan County is classified as: Mining dependent (a county is classified as mining dependent if mining accounted for 13% or more of the county's earnings or 8% of the employment averaged over 2010-12); low employment (less than 65% of

⁵ Land management plans are developed in compliance with Federal Land Policy and Management Act (FLPMA) and NEPA regulations.

⁶ A May 2017 SITLA land auction included a 1,120 acre parcel within BENM, the Needles Outpost, which sold for \$2.5 million, or \$2,232 per acre (https://trustlands.utah.gov/land_auction_earns_3_million_for_public_schools/).

⁷ Fast Facts and Q&A about the Bears Ears National Monument Designation, BLM.

Table 1. San Juan County and state of Utah Economic Snapshot

Measure	San Juan County, UT	Utah
Population, 2016 ^a	15,152	2,903,379
Native American % of population ^a	47.0%	1.7%
Unemployment rate, March 2017 ^b	7.0%	3.1%
Median Household Income, 2015 ^a	\$41,484	\$60,727
Native American Median Household Income, 2015 ^a	\$24,132	\$36,428

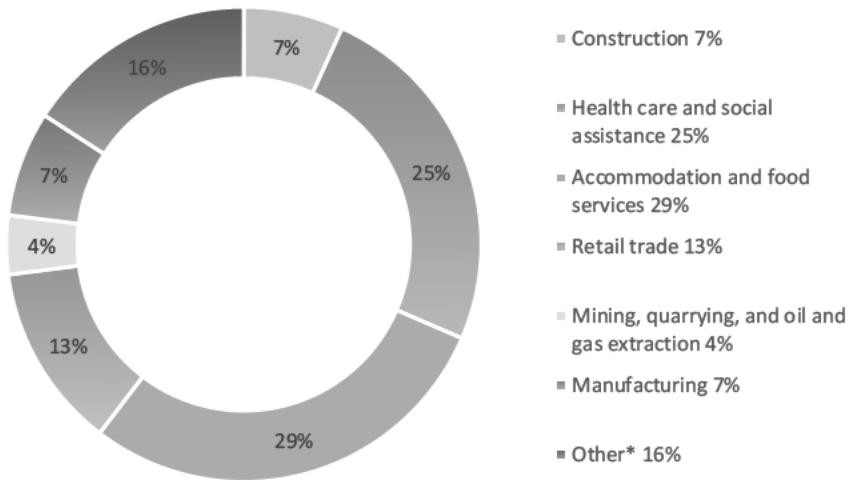
^a U.S. Census Bureau, 2011–2015 American Community Survey

^b <http://www.jobs.utah.gov/wi/pubs/une/season.html>

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residents age 25-64 were employed in 2008-12); persistent poverty (a county was classified as persistent poverty if 20 percent or more of its residents were poor as measured by the 1980, 1990, and 2000 decennial censuses and the American Community Survey 5-year estimates for 2007-11); and persistent related child poverty (a county was classified as persistent related child poverty if 20 percent or more of related children under 18 years old were poor as measured by the 1980, 1990, and 2000 decennial censuses and the American Community Survey 5-year estimates for 2007-11).⁸

Figure 1. Percent of employment by use sector in San Juan County, 2015



*Other includes agriculture/forestry; utilities; wholesale trade; finance and insurance; real estate; professional, scientific and technical services; admin and support services; waste management; educational services; arts and entertainment; and transportation and warehousing. Each of these represents less than 4% of total employment.

Information is provided below on two different types of economic information: “economic contributions,” and “economic values.” Both types of information are informative in decision making. Economic contributions track expenditures as they cycle through the local and regional economy, supporting employment and economic output (see Table 2). It is estimated that recreation activities in the BENM area supported about 460 jobs and provided about \$23 million in value added in FY 2016.

Definitions

Value Added: A measure of economic contributions; calculated as the difference between total output (sales) and the cost of any intermediate inputs.

Economic Value: The estimated net value, above any expenditures, that individuals place on goods and services; these are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

Employment: The total number of jobs supported by activities.

⁸ <https://www.ers.usda.gov/data-products/county-typology-codes/documentation/>.

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Economic values, in contrast to economic contributions, represent the net value, above and beyond any expenditures, that individuals place on goods and services. To the extent information is available some of these values are presented in Table 3. Economic values are particularly relevant in situations where market prices may not be fully reflective of the values individuals place on some goods and services.

Table 2. Estimated Economic Contributions, 2016

<i>Activities and Resources Associated With Bears Ears National Monument</i>	Activities	Value added (net additions to GDP), \$ millions	Employment supported (number of jobs)
Activities occurring at Bears Ears National Monument include recreation (camping, hiking, canyoneering, mountain biking, boating, rock climbing, hunting, ATV use), viewing ancestral Puebloan cultural sites, collection of materials for tribal ceremonial purposes, scientific and archaeological research, firewood collection and other non-commercial timber production, grazing and energy/non-energy mineral production with valid existing rights. Further details on these activities are provided below.	Recreation	\$22.9	463
	Non energy Minerals	\$0.24	2
	Grazing	Grazing value added is not available	161
	Cultural resources	Unquantifiable; some values would be included in recreation	Unquantifiable; some values would be included in recreation

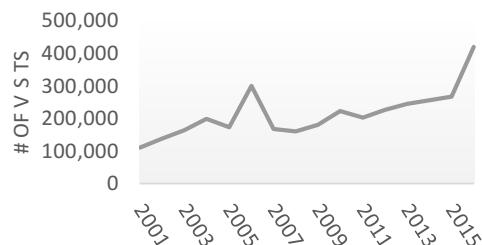
- **Recreation:** Annual recreation visitation data for 2001-2016 is available for the BLM Monticello Field Office. About 60 percent of area formerly under the jurisdiction of the Field Office represents the area included in the Monument. This area receives the vast majority of recreation use. Recreation visits increased steadily from about 111,000 in 2001 to about 419,000 in 2016 (see Figure 2). Comparatively, visitation to National Monuments and NCAs that have tracked unit-level visitation since 2005 has grown at an average rate of about 5.4% per year. Prior to designation, BLM also tracked the number of visits to the Kane Gulch ranger station that served the southern end of the monument. The number of visits to this ranger station in March and April of 2017 was more than 50% higher than the average visitation during the same months of the four previous years. Recreation activities provide the opportunity for economic activity to be generated from tourism for an indefinite period of time. The economic contributions occur annually, and in cases where visitation increases over time, recreation generates additional activity each year. The net economic contributions associated with recreation in 2016 are estimated to be about \$23 million in value added and 463 jobs. These contributions affect the regional and state economies.

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In addition, annual recreation visits to the Manti-La Sal National Forest, part of which is now within BENM boundaries, are estimated to number around 350,000. USFS does not have information on visits to specific areas within the National Forest, so it is not possible to determine visitation to the part of the forest that is now in BENM. However, it is likely that recreation visitation to the area that is now BENM exceeds what was captured by the BLM Monticello Field Office since there was likely additional visitation to the included section of the Manti-La Sal National Forest. The estimates of economic contributions associated with recreation are based solely on the level of visitation to the BLM-managed land in 2016; these could be considered conservative estimates as they do not include the impacts of visitation to USFS-managed land.

- **Energy:** In general, the scope, magnitude, and timing of energy and minerals activities are closely related to supply and demand conditions in world markets and the market prices of mineral commodities. To date, energy development on the Monument has been limited.
 - **Coal.** There have been no coal developments in the Monument area. Furthermore, there is very little, if any, prospectively valuable coal within the monument boundaries, based on the energy and mineral resource assessment conducted for BENM. Potential for prospectively valuable coal, as surveyed by the USGS, lies almost entirely to the east of the monument.
 - **Oil and gas.**
 - USGS assessments indicate a high level of potential for oil and gas within the monument boundaries, however there are currently no producing oil and gas wells within the Monument.⁹ The upper northeast panhandle of BENM lies within the boundaries of the Moab Master Leasing Plan and portions of the southeastern and southcentral areas of the monument were included in a proposed San Juan Master Leasing Plan. Approximately 63,600 acres within the proposed San Juan Master Leasing Plan area have been nominated for leasing since 2014. All of these lease nominations were deferred due to existing land use plan decisions and potential adverse impacts on cultural resources.
 - There are currently 25 existing federal oil and gas leases that are partially or wholly contained within the monument boundaries, with lease authorizations spanning the period from 1972 to 2012. Valid existing rights are protected under the proclamation, so development on these existing leases could occur if development is found to be economic. Currently, there are no authorized or pending applications for permit to drill (APDs) associated with these leases. No oil and gas wells have been drilled on existing leases since 1993 and all wells within monument boundaries have been plugged. Of the 250 wells that have

Figure 2. Recreation Visits to BLM Monticello Field Office, 2001–2016



⁹ The Monument area is within a USGS Energy Assessment Unit (AU) and has historic uranium mining activity (the Monument is within 2 conv. AUs and 1 cont. AU, Paradox Basin Province (315 MMBO, 999 BCF, 18 MMBNGL)<https://pubs.usgs.gov/fs/2012/3031/>.

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been drilled since 1920, only three wells have produced economical quantities of oil and gas. The last producing well was drilled in 1984 and ceased production in 1992.

- **Non-fuel minerals.**

- **Sand and gravel.** There is one commercial minerals materials mining site within monument boundaries that produces sand and gravel. The permit for this site was renewed in March, 2016 for a 10-year period. Production is limited to a maximum of 200,000 cubic yards over the life of the 10-year permit, and designation of the monument does not affect the limits on production.¹⁰
 - **Potash.** While USGS surveys have assessed potential for potash in the northeastern panhandle of BENM (an area within the boundaries of the Moab Master Leasing Plan prior to designation), no sites in this area were identified as Potash Leasing Areas in the most recent Moab Master Leasing Plan (2016). BLM has denied all potash prospecting permit applications received from 2008 to 2015, primarily because they were inconsistent with protection of multiple resource values use (such as natural or cultural use) in the area.¹¹
 - **Uranium.** While there are no active mining operations on USFS-managed land, there are 78 active unpatented mining claims for uranium. There are no mining claims for uranium on BLM-managed land. The uranium ore in the Manti-La Sal National Forest is low grade, affecting the ability of the local industry to compete economically on the world market.¹² Uranium prices are volatile and, though currently higher than historical prices, have been trending downward since peaking in 2008.¹³
- **Timber.** Timber harvest activities such as non-commercial Christmas tree cutting and collection of wood for posts and firewood are allowed by permit on both BLM and USFS-managed land. For BLM-managed lands, no information is available on the level of magnitude of these activities strictly within monument boundaries, however within the boundaries of the Monticello Field Office the total estimated value of harvested firewood, wooded posts, and Christmas trees was about \$12,000 in FY 2016. In addition to selling permits for Christmas trees, firewood, and wood for posts, there were about 736,000 cubic feet of forest products produced within the USFS-managed land within the monument boundaries between 2012 and 2015. The monument proclamation allows for the continuation of all pre-designation timber activities.

¹⁰ Supply and demand conditions determine how much is produced annually within the overall limit on overall production. BLM receives a royalty of \$1.08 per cubic yard (\$0.66 per ton) of mineral production. The national average price for sand and gravel used in construction was \$8.80/metric ton ([https://minerals.usgs.gov/minerals/pubs/commodity/sand & gravel/construction/mcs_2017_sandc.pdf](https://minerals.usgs.gov/minerals/pubs/commodity/sand_&_gravel/construction/mcs_2017_sandc.pdf)).

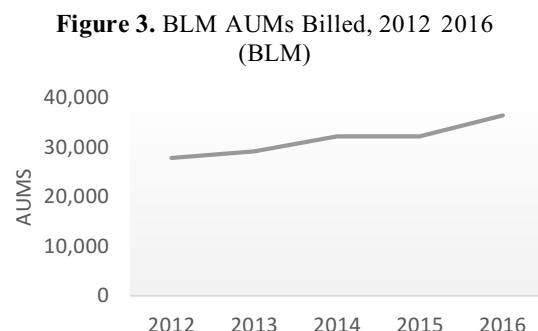
¹¹ Potash production depends largely on market forces. U.S. consumption of potash was down in 2016 owing to a drop in agricultural use in the first half of the year and lower industrial usage, primarily in oil well drilling mud additives. The world potash market in 2016 was marked by weak demand in the first half of the year, mainly in China and India, the largest consumers of potash. This excess supply resulted in lower prices, and reduced production. The average price of potash in 2016 was \$360 per ton.

¹² Manti La Sal National Forest Land and Resource Management Plan, 1986.

¹³ <https://www.eia.gov/uranium/marketing/>.

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- **Forage.** Grazing is permitted on both BLM and USFS-managed lands within the Monument boundaries; no grazing permits were bought out upon designation of the monument. The allotments that are wholly or partially contained within the boundaries of BENM include 50,469 permitted Animal Unit Month (AUMs)¹⁴ on BLM-managed land and 11,078 AUMs permitted on USFS-managed land. The monument proclamation allows for the continuation of all pre-designation grazing activities, including maintenance of stock watering facilities. Figure 3 shows the number of AUMs billed by BLM annually over 2012-2016. In 2016, there were about 36,400 billed AUMs on BLM-managed land; on average, billed AUMs represent about 60% of permitted AUMs. Information on billed AUMs on USFS-managed land is not currently available.



- **Cultural and historic resources.** Indigenous communities may utilize natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs.

According to the Utah State Historic Preservation Office, as of Feb. 6, 2017, there are 8,480 recorded archaeological sites and four archaeological districts within BENM. The following archaeological districts are either completely within or partially within BENM: Butler Wash, Grand Gulch, Natural Bridges, and the Salt Creek Archaeological District. More than 70 percent of these sites are prehistoric (pre-dating the 1800s). These prehistoric sites include pottery and stone tool (lithic) scatters, the remains of cooking features (hearths), storage features such as adobe granaries and subsurface stone lined granaries, prehistoric roads, petroglyphs, pictographs and cliff dwellings. The remaining sites are historic and include debris scatters, roads, fences, and uranium and vanadium mines from World War II and the Cold War. The total percentage of the BLM-managed portion of BENM that has been surveyed for cultural resources is 9.2 percent.

In addition the USFS-managed portion of BENM includes 2,725 known cultural sites and features an area containing over 2,027 Puebloan sites, most of which are *Pueblo I*. The *Pueblo I* culture is limited to only a few locations and the USFS-managed portion of BENM contains the only high elevation communities of this era. These sites include hunting camps and blinds, ceremonial sites, granaries, stone quarries, villages and residences, agricultural systems, kilns, rock art, and shrines, as well as protohistoric sweat lodges and hogans. Only 15 to 20 percent of the USFS-

¹⁴ BLM measures an AUM as the amount of forage needed to sustain one cow and her calf, one domestic horse, or 5 sheep or goats for one month. <https://www.blm.gov/programs/natural-resources/rangelands-and-grazing/livestock-grazing-fees-and-distribution>.

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managed portion of BENM has been surveyed for cultural resources. Activities currently undertaken by tribal members include hunting, fishing, gathering, wood cutting, and the collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.

Multiple Use, Tradeoffs among Permitted Activities, and Types of Economic Information

Decision-making often involves multiple objectives and the need to make tradeoffs among those objectives. Table 3 provides a summary of activities and economic values and information on the timing and drivers of future activity levels. Market supply and demand conditions drive energy and minerals activity; societal preferences and household disposal income affect recreation activity levels; and market prices and range conditions affect the demand for forage. Culturally important sites and unique natural resources, by definition, have limited substitutes and are difficult to value.

As with any land managed for multiple uses, planning for permitted uses on National Monuments will involve trade-offs among different activities on the land area being managed. In some cases, certain areas of the Monument may be appropriate for more than one use, and the trade-offs must be considered and management decisions may be made that prioritize certain uses over others. In other cases, land areas may be more appropriate for a particular use and activities could be restricted to certain areas of the Monument. Factors that could inform these tradeoffs include demand for the good or activity, prices, and societal preferences. Other considerations might include the timeframe of the activity - how long the benefits and costs of a given activity would be expected to extend into the future.

In considering the trade-offs, it is not just the level and net economic value associated with an activity that occurs in a given year that is relevant to decision making. Virtually all activities within the Monument occur over time and it is the stream of costs and benefits over a given period of time associated with each activity that is relevant. For example, recreation activities could continue indefinitely assuming the resources required for recreation remain intact and of sufficient quality for the activity. Grazing could also continue indefinitely as long as the forage resource is sustainably managed. The stream of costs and benefits for some other non-renewable resources would be finite, however. For example, oil, gas, coal and minerals are all non-renewable resources and would only be extracted as long as the resource is economically feasible to produce.

In the 2008 update to the Resource Management Plan for the Monticello Field Office, 60% of which is now BENM, an alternative emphasizing commodity development was considered but not selected due to its adverse impacts on wildlife and recreation opportunities, which includes visits for cultural purposes. This alternative was determined to be insufficient to protect all the important and sensitive resources within the planning area. Likewise, an alternative emphasizing protection of the area's natural and biological values was not selected in part due to the restrictions it placed on recreation permits and opportunities, which would have resulted in negative economic impacts on local businesses.

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Table 3. Summary of Activities and Economic Values, FY 2016

Activities	Level of annual activity	Unit Value	Timing	Drivers of the current and future levels of activity
Recreation ^a	530,892 visitor days (FY 2016)	\$54.19/visitor day	Visitation could continue indefinitely if landscape resources remain intact and of sufficient quality.	Societal preferences for outdoor recreation; disposable income; changing individual preferences for work and leisure time
Oil, gas, coal production	Little or none to date, see "Oil and gas" section for more information	FY 2016 average prices: -crude oil (WTI): \$41.34/bbl -natural gas: \$2.29/mcf -coal (subbituminous): \$12.08/ton	Development of energy and non-energy minerals is subject to market forces (worldwide supply and demand, prices). Mineral extraction is non-renewable and occurs only as long as the resource is economically feasible to produce.	Market prices of energy commodities affect both supply and demand.
Non-energy Minerals	34,813 tons ^b of sand and gravel (average of 2011-2015 production)	National average price for sand and gravel (2016): \$7.72/ton		Market prices of non-energy commodities affect both supply and demand. Mineral production is limited to 200,000 cubic yards over a 10-year period per the existing resource management plan.
Grazing	36,402 AUMs (2016)	2016 grazing fee: \$2.11/AUM	Grazing could continue indefinitely if forage resources are managed sustainably.	Market prices for cattle and sheep and resource protection needs and range conditions (due to drought, fire, etc.) can affect AUMs permitted and billed.
Cultural resources	Indigenous communities often use natural resources to an extent and in ways that are different from the general population, and the role that natural resources play in the culture of these indigenous communities may differ from that of the general population. Culturally important sites and unique natural resources, by definition, have limited substitutes. Recognizing this is a critical consideration in land management because it may affect consideration of tradeoffs. BENM contains substantial cultural resources that have not been fully surveyed. Tribes use the sacred sites within BENM for hunting; fishing; gathering; wood cutting; and for collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear.			
Benefits of nature	Services provided by nature underpin all sectors of a local economy. As many of these services are not sold in markets, we have limited information on their prices or values. Specific benefits related to BENM include protection of crucial habitats for deer, elk, desert bighorn sheep, pronghorn, and endemic plant species that inhabit rare habitat types such as hanging gardens.			

^a Recreation unit value is a survey-based value for general recreation for the Intermountain region.

^b Reported average production of 21,396 cubic yards converted to tons using a conversion factor of 1.63 cu yds/ton.